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PATENT DEPARTMENT
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EXAMINER

NOBAHAR, ABDULHAKIM

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

1. This office action is in response to applicant's amendment filed on 04/16/2009.
2. Claims 112 and 114-161 are pending.
3. Claim 113 is cancelled.
4. Claims 112 and 124 are amended.
5. Applicant's arguments with regard to the claims rejection under 35 USC 103(a) have been fully considered but they are not persuasive.

Response to Arguments

1. Applicant on page 14 of the remarks argues that "the adjunct is still smaller than a concatenation of the copier related information since the increase (i.e., the size of the term "B2") is significantly less than the size of the original adjunct (i.e., $A(0) > B2$)."

Examiner respectfully disagrees and asserts that the above statement is not described in the specification and there is no reason to believe that the size of B2 is significantly smaller than A(0) at least from the explanation on page 10, line 28 and page 27, line 26 that applicant has referred to them. Equations (8) through (11) given on pages 28 and 29 of the specification and the related descriptions do not provide any indication to support the above statement. Examiner considers the amendments to the claims 112 and 124 are new matter, unless applicant provides descriptions that is covered and supported by the specification.

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2. Applicant also on page 16 of the remarks argues that “it must teach the use of an XOR operation to perform the functional transformation as recited in claim 112”.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the operation XOR must not increase the size of an adjunct to a content) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

While it may be through that the type of XOR explained in the specification does not increase the size of the adjunct, but the claim 112 certainly does not recites this subject matter. A mere recitation of performing a functional transformation on an adjunct to content in the claim does not prove that the size of the adjunct whether increases, decreases or remains the same.

3. With respect to claim 112 (and claim 124), applicant further on page 17 of the remarks argues that “the XOR operation in Rhoads et al. actually increases the number of raw bits (corresponding to the message) by the length of the pseudo random binary number.”

Examiner respectfully disagrees and asserts that RHoads discloses:

- the embedder makes a perceptual analysis 218 of the input image 220 to identify portions of the image that can withstand more watermarking signal content without substantially impacting image fidelity (see col. 13, lines 30-33);

- the modulator performs an exclusive OR (XOR) operation between the raw bit and each bit of a pseudo random binary number of a pre-determined length. The length of the pseudo random number depends, in part, on the size of the message and the image. Preferably, the pseudo random number should contain roughly the same number of zeros and ones, so that the net effect of the raw bit on the host image block is zero (see col. 18, lines 12-19); and

- In the exemplary watermarking algorithm, the average change in luminosity across the security document image is zero (see col. 39, lines 54-56).

Therefore, the XOR operation utilized by Rhoads does not perceptively and substantially change the size of the host content (i.e., image or message) which is functionally equivalent to the claim 112 and 124 limitation.

4. With respect to claim 125 (and claim 136), applicant further on page 18 of the remarks argues that “Rhoads et al., on the other hand, does not even discuss the storage and extraction of content distribution information in an adjunct to content”.

Examiner respectfully disagrees and asserts that Rhoads discloses:

- The embedding component embeds a watermark pattern by altering data samples of the media content. The reading component analyzes content to detect whether a watermark pattern is present (see col. 2, lines 49-52);

- The watermark components may be defined, embedded and extracted in different domains (see col. 3, lines 48-50);

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- Finally, a reader extracts a message in the watermark signal from the combined signal using the orientation to approximate the original state of the combined signal (see col. 4, lines 9-12);

- A watermark can be viewed as an information signal that is embedded in a host signal, such as an image, audio, or some other media content (see col. 6, lines 9-11);
and

- A reader that extracts a watermark message from the combined signal (see col. 6, lines 17-19);

- The detector may implement a pre-processing stage that performs the inverse of the transfer function for the printing process (see col. 24, lines 25-27).

The above teachings of Rhoads disclose a system capable of storing (i.e., embedding) and extracting information from an embedded watermark (the embedded watermark corresponds to the recited adjunct to content).

5. With respect to applicant argument regarding claim 137 on page 19 of the remarks, see the above response to the arguments related to claims 112 and 124.

6. With respect to applicant argument regarding claim 143 on page 19 (and claim 157 on page 20) of the remarks, see the above response to the arguments related to claim 125.

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7. Examiner, however, in light of the above submission maintains the previous rejections for claims 125-161.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 112 and 114-124 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. These claims recite “the adjunct is smaller than a concatenation of the copier related information for the succession of copies of the content” which is not described in the specification.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 112, 114-123, 125-135 and 137-151 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory “process” under 35 U.S.C. 101 must (1) be tied to particular machine, or (2) transform underlying subject matter

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(such as an article or material) to a different state or thing. See page 10 of In Re Bilski 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a statutory process. Here, applicant's method of performing a functional transformation on an adjunct to content is broad enough that the claim could be completely performed mentally, verbally or without a machine. Thus, the claims are non-statutory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 125-161 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al (2003/0125964 A1) in view of Rhoads et al (7,113,615 B2).

Regarding claim 125, 136, 137, 143 and 157, Chang discloses:

A method for extracting content distribution information from a copy of content (recording content distribution information in an adjunct to content) (see, e.g., Para [0012]), comprising: sequentially performing a functional transformation on and extracting content distribution information from an adjunct to a copy of content, wherein the adjunct contains copier related information (see, e.g., Para [0012], where registered

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users is an indication of producing successive authorized copies and storing user data in the embedded watermark corresponds to the recited copier related information; see also paragraphs [0048], [0050], [0052] and Fig. 5, where a functional transformation is illustrated).

Chang, however, does not expressly disclose that to perform inverse transformation on an adjunct to a copy of the content in order to extract (i.e., retrieve) information of an original copy of the content.

Rhoads discloses a system for processing watermark structures that comprises embedders, detectors and readers (see Fig. 1 and col. 2, line 66-col. 3, line 10). Rhoads further discloses the use of an exclusive OR (XOR) operation for embedding information into content such that the net effect on the content (e.g., a host image) is zero (see col. 18, lines 29-40). Rhoads also discloses performing inverse transformation on the adjunct to the content to retrieve information about the original copy of the content (see col. 14, lines 42-58; col. 15, lines 5-12; col. 24, lines 13-27).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to implement an embedding technique that does not affect the size of the host content as taught in Rhoads and also utilizing and inverse transformation to extract original copy of content information in the system of Chang.

Rhoads on col. 33, lines 19-47 describes that the XOR operation is also used as a reverse operation on the received signals to retrieve embedded information by the reader component of the system. This implementation makes the system a more practical and a simple system.

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Regarding claim 126, Chang discloses:

The method according to claim 125, wherein the functional transformation was used to modify the adjunct with copier related information upon each successive generation of an authorized copy of the content originating from the original copy of the content (see [001]-[0014]).

Regarding claim 127, 128, 145, 146, 158 and 159, Rhoads discloses:

The method according to claim 125, wherein the functional transformation is an exclusive-OR function (see col. 18, lines 29-40).

Regarding claims 129, 140, 147 and 148, Chang discloses:

The method according to claim 125, wherein the adjunct is a watermark embedded in the content (see [0030]).

Regarding claims 130, 141 and 148, Chang in view of Rhoads discloses:

The method according to claim 125, wherein the adjunct is meta data associated with the content (see [0010] and [0012]. See also Rhoads, col. 53, lines 25-30).

Regarding claims 131, 142 and 149, Rhoads discloses:

The method according to claim 125, wherein the adjunct is a signature related to the content (see col. 10, lines 63-66).

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Regarding claim 132, Chang discloses:

The method according to claim 125, wherein the content is copyrightable material (see [0008]).

Regarding claim 133, Chang discloses:

The method according to claim 125, wherein the copier related information includes information of a user identification associated with a user of a copier used for generation of an authorized copy of the content (see [0012]).

Regarding claims 134 and 153, Chang discloses:

The method according to claim 125, wherein the copier related information includes information of an IP address associated with a copier used for generation of an authorized copy of the content (see [0036]).

Regarding claims 135, 144, 152 and 160, Chang discloses:

The method according to claim 125, wherein the copier related information includes information of a copy device used for generation of an authorized copy of the content by a copier (see [0036]).

Regarding claims 138, 150 and 151, Chang in view of Rhoads discloses:

The method according to claim 137, wherein the adjunct is further modified to include information indicating an approximate time when the functional transformation is being

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performed (see [0013] and [0030]. See also Rhoads, col. 31, lines 37-37 and col. 47, lines 31-37).

Regarding claim 139, Chang discloses:

The method according to claim 137, wherein each network node relaying the packet of data through a network to a final destination performs the functional transformation on the adjunct to content in the packet of data so that the adjunct is modified to include identifying information of all such network nodes by the time it reaches the final destination (see Fig. 1, [0009] and [0029]).

Regarding claims 154 and 161, Chang discloses:

The method according to claim 143, wherein the method is performed by a BOT on the network (see [0030], where the software provided by the owner of the content corresponds to the recited BOT).

Regarding claim 155 and 156, Chang discloses:

The method according to claim 154, wherein the method is performed by the BOT on each packet of data encountered by the BOT while scouring the network so that the content distribution information determined thereby is useful for determining a network topology for the network and determining supernodes in the network (see [0012], where the transmitted packets associated with the digital product are used to track the distribution of the digital product. Each packet header contains the addresses of the

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origin and the destination network component which can be used to determine the network topology and information about the sending and receiving components; [0030], where the software provided by the owner of the content corresponds to the recited BOT).

Allowable Subject Matter

Claims 112 and 114-124 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, first paragraph and 35 U.S.C. 101, set forth in this Office action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDULHAKIM NOBAHAR whose telephone number is (571)272-3808. The examiner can normally be reached on M-T 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/A. N./
Examiner, Art Unit 2432

August 11, 2009

/Benjamin E Lanier/
Primary Examiner, Art Unit 2432